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### 1 [Translating between itanium and sparc memory consistency models](#)

[Lisa Higham, LiliAnne Jackson](#)

July 2006 **SPAA '06**: Proceedings of the eighteenth annual ACM symposium on algorithms and architectures

**Publisher:** ACM [Request Permissions](#)

Full text available: [Pdf](#) (258.74 KB) Additional Information: [full citation](#), [abstract](#), [ref](#)

**Bibliometrics:** Downloads (6 Weeks): 3, Downloads (12 Months): 36, Citation

Our general goal is to port programs from one multiprocessor architecture ensuring that each program's semantics remains unchanged. This paper addresses the problem by determining the relationships between memory consistency

**Keywords:** itanium, memory consistency models, multiprocessors, pro sparc

### 2 [Speculation techniques for improving load related instruction scheduling](#)

[Adi Yoaz, Mattan Erez, Ronny Ronen, Stephan Jourdan](#)

May 1999 **ISCA '99**: Proceedings of the 26th annual international symposium on computer architecture

**Publisher:** ACM

Full text available: [Publisher Site](#), [Pdf](#) (164.15 KB) Additional Information: [full citation](#), [abstract](#), [index term](#)

**Bibliometrics:** Downloads (6 Weeks): 5, Downloads (12 Months): 42, Citation

State of the art microprocessors achieve high performance by executing instructions in an out-of-order engine. In an out-of-order engine, the instruction scheduler is responsible for scheduling instructions to execution units based on dependencies, latencies, ...

Also published in:

May 1999 **SIGARCH Computer Architecture News** Volume 27 Issue 2

### 3 [Feedback-directed memory disambiguation through store distance analysis](#)

[Changpeng Fang, Steve Carr, Soner Onder, Zhenlin Wang](#)

June 2006 **ICS '06**: Proceedings of the 20th annual international conference on supercomputing

**Publisher:** ACM [Request Permissions](#)

Full text available: [Pdf](#) (696.61 KB) Additional Information: [full citation](#), [abstract](#), [ref](#)

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Feedback-directed optimization has developed into an increasingly important optimizing compilers. Based upon profiling, memory distance analysis helps predicting data locality and memory dependences, and has seen ...

**Keywords:** memory disambiguation, store distance

#### 4 [Instruction set synthesis with efficient instruction encoding for configurable processors](#)

 [Jong-Eun Lee, Kiyoung Choi, Nikil D. Dutt](#)

January 2007 **Transactions on Design Automation of Electronic Systems**  
Issue 1

**Publisher:** ACM  [Request Permissions](#)


Full text available:  Pdf (1.48 MB) Additional Information: [full citation](#), [abstract](#), [ref](#)

**Bibliometrics:** Downloads (6 Weeks): 4, Downloads (12 Months): 69, Citation

Application-specific instructions can significantly improve the performance and code size of configurable processors. While generating new instructions and operation patterns has been a common way to improve ...

**Keywords:** Application-specific instruction set processor (ASIP), ISA customization, specialization, bitwidth-economical, configurable processor, instruction compression

#### 5 [Java consistency: nonoperational characterizations for Java memory models](#)

 [Alex Gontmakher, Assaf Schuster](#)

November 2000 **Transactions on Computer Systems (TOCS)**, Volume 18 Issue 4

**Publisher:** ACM  [Request Permissions](#)

Full text available:  Pdf (305.72 KB) Additional Information: [full citation](#), [abstract](#), [ref](#)

**Bibliometrics:** Downloads (6 Weeks): 5, Downloads (12 Months): 29, Citation

The Java Language Specification (JLS) [Gosling et al. 1996] provides an abstract definition of the consistency of shared variables. The definition remains unchanged in the current version, which is currently under peer review, which relies on a specific abstract ...

**Keywords:** Java memory models, multithreading, nonoperational specifications

#### 6 [Reducing Design Complexity of the Load/Store Queue](#)

[Il Park, Chong Liang Ooi, T. N. Vijaykumar](#)

December 2003 **MI CRO 36: Proceedings of the 36th annual IEEE/ACM International Symposium on Microarchitecture**

**Publisher:** IEEE Computer Society

Full text available:  Pdf (174.73 KB) Additional Information: [full citation](#), [abstract](#), [ref](#)

**Bibliometrics:** Downloads (6 Weeks): 9, Downloads (12 Months): 42, Citation

With faster CPU clocks and wider pipelines, all relevant microarchitectures must be redesigned accordingly. There have been many proposals for scaling the issue queue hierarchy. However, nothing has been done for scaling the ...

#### 7 [Fire-and-Forget: Load/Store Scheduling with No Store Queue at All](#)

Samantika Subramaniam, Gabriel H. Loh

December 2006 **MICRO 39: Proceedings of the 39th Annual IEEE/ACM International Symposium on Microarchitecture**

**Publisher:** IEEE Computer Society

Full text available:  Pdf (357.14 KB) Additional Information: [full citation](#), [abstract](#), [ref](#)

**Bibliometrics:** Downloads (6 Weeks): 2, Downloads (12 Months): 32, Citation

Modern processors use CAM-based load and store queues (LQ/SQ) to support memory scheduling and store-to-load forwarding. However, the LQ and SQ sizes required for large-window, high- ILP processors. Past research has

## 8 Co-synthesis of pipelined structures and instruction reordering constraints for processors



Ing-Jer Huang

January 2001 **Transactions on Design Automation of Electronic Systems**, Issue 1

**Publisher:** ACM  [Request Permissions](#)

Full text available:  Pdf (1.58 MB) Additional Information: [full citation](#), [abstract](#), [ref](#)

**Bibliometrics:** Downloads (6 Weeks): 5, Downloads (12 Months): 28, Citation

This paper presents a hardware/software co-synthesis approach to pipeline processor design. The approach synthesizes the pipeline structure from architecture (behavioral) specification. In addition, it generates ...

**Keywords:** compiler instruction optimization, instruction set processor taxonomy, synthesis

## 9 Parallelizing load/stores on dual-bank memory embedded processor



Xiaotong Zhuang, Santosh Pande

August 2006 **Transactions on Embedded Computing Systems (TECS)**

**Publisher:** ACM  [Request Permissions](#)

Full text available:  Pdf (746.64 KB) Additional Information: [full citation](#), [abstract](#), [ref](#)

**Bibliometrics:** Downloads (6 Weeks): 4, Downloads (12 Months): 57, Citation

Many modern embedded processors such as DSPs support partitioned memory (X-Y memory or dual-bank memory) along with parallel load/store instructions to improve code density and performance. In order to effectively utilize the ...

**Keywords:** DSP architectures, memory bank allocation, parallel load/store optimization

## 10 Link-time compaction and optimization of ARM executables



Bjorn De Sutter, Ludo Van Put, Dominique Charet, Bruno De Bus, Koen De

February 2007 **Transactions on Embedded Computing Systems (TECS)**

**Publisher:** ACM  [Request Permissions](#)

Full text available:  Pdf (636.53 KB) Additional Information: [full citation](#), [abstract](#), [ref](#)

**Bibliometrics:** Downloads (6 Weeks): 10, Downloads (12 Months): 112, Citation

The overhead in terms of code size, power consumption, and execution precompiled libraries and separate compilation is often unacceptable in where real-time constraints, battery life-time, and production ...

**Keywords:** Performance, compaction, linker, optimization

# 11 [Assembly instruction level reverse execution for debugging](#)

 [Tankut Akgul, Vincent J. Mooney III](#)

April 2004 **Transactions on Software Engineering and Methodology (**

**Publisher:** ACM  [Request Permissions](#)


Full text available:  [Pdf](#) (1.18 MB) Additional Information: [full citation](#), [abstract](#), [ref](#)

**Bibliometrics:** Downloads (6 Weeks): 27, Downloads (12 Months): 72, Citation

Assembly instruction level reverse execution provides a programmer with the ability to return a program to a previous state in its execution history via execution of a "reverse" instruction. The ability to execute a program in reverse is advantageous for ...

**Keywords:** Debugging, reverse code generation, reverse execution

# 12 [On the value locality of store instructions](#)

 [Kevin M. Lepak, Mikko H. Lipasti](#)

June 2000 **ISCA '00: Proceedings of the 27th annual international symposium on computer architecture**

**Publisher:** ACM

Full text available:  [Pdf](#) (149.50 KB) Additional Information: [full citation](#), [abstract](#), [ref](#)


**Bibliometrics:** Downloads (6 Weeks): 4, Downloads (12 Months): 33, Citation

Value locality, a recently discovered program attribute that describes the recurrence of previously-seen program values, has been studied extensively in the published literature. Much of the energy has focused on refining ...

Also published in:

May 2000 **SIGARCH Computer Architecture News** Volume 28 Issue 2

# 13 [Toward kilo-instruction processors](#)

 [Adrián Cristal, Oliverio J. Santana, Mateo Valero, José F. Martínez](#)

December 2004 **Transactions on Architecture and Code Optimization (**




**Publisher:** ACM  [Request Permissions](#)

Full text available:  [Pdf](#) (1.16 MB) Additional Information: [full citation](#), [abstract](#), [ref](#)

**Bibliometrics:** Downloads (6 Weeks): 3, Downloads (12 Months): 61, Citation

The continuously increasing gap between processor and memory speed: the performance achievable by future microprocessors. Currently, processor memory operations are largely maintained by maintaining a high number of ...




**Keywords:** Memory wall, instruction-level parallelism, kilo-instruction processors, multicheckpointing

-  [An efficient single-pass trace compression technique utilizing instruc](#)  
 Aleksandar Milenković, Milena Milenković  
 January 2007 **Transactions on Modeling and Computer Simulation (TCM)**  
**Publisher:** ACM  [Request Permissions](#)  
 Full text available:  Pdf (848.21 KB) Additional Information: [full citation](#), [abstract](#), [ref](#)  
**Bibliometrics:** Downloads (6 Weeks): 8, Downloads (12 Months): 44, Citation

Trace-driven simulations have been widely used in computer architecture evaluations of new ideas and design prototypes. Efficient trace compression and decompression are crucial for contemporary workloads, as representative

**Keywords:** Instruction and data traces, instruction streams, trace compression




#### 15 The KScalar simulator

-  [J. C. Mouré, Dolores I. Rexachs, Emilio Luque](#)  
 March 2002 **Journal on Educational Resources in Computing (JERIC)**  
**Publisher:** ACM  [Request Permissions](#)  
 Full text available:  Pdf (493.35 KB) Additional Information: [full citation](#), [abstract](#), [ref](#)  
**Bibliometrics:** Downloads (6 Weeks): 11, Downloads (12 Months): 80, Citation

Modern processors increase their performance with complex microarchitectures, which makes them more and more difficult to understand and evaluate. KScalar is a tool that facilitates the study of such processors. It allows ...



**Keywords:** Education, pipelined processor simulator

#### 16 GPGPU: general purpose computation on graphics hardware

-  [David Luebke, Mark Harris, Jens Krüger, Tim Purcell, Naga Govindaraju, Ian Aaron Lefohn](#)  
 August 2004 **SIGGRAPH '04: SIGGRAPH 2004 Course Notes**  
**Publisher:** ACM  [Request Permissions](#)  
 Full text available:  Pdf (63.03 MB) Additional Information: [full citation](#), [abstract](#), [citation](#)  
**Bibliometrics:** Downloads (6 Weeks): 125, Downloads (12 Months): 1421, Citation

The graphics processor (GPU) on today's commodity video cards has evolved into a powerful and flexible processor. The latest graphics architectures provide high bandwidth and computational horsepower, with fully programmable vertex and fragment processors.

#### 17 Adapting compilation techniques to enhance the packing of instructions

-  [Stephen Hines, David Whalley, Gary Tyson](#)  
 October 2006 **CASES '06: Proceedings of the 2006 international conference on compilation and synthesis for embedded systems**  
**Publisher:** ACM  
 Full text available:  Pdf (598.56 KB) Additional Information: [full citation](#), [abstract](#), [ref](#)  
**Bibliometrics:** Downloads (6 Weeks): 2, Downloads (12 Months): 26, Citation

The architectural design of embedded systems is becoming increasingly constrained by varying constraints regarding energy consumption, code size, and execution time.

compiler optimizations are often tuned for improving general architectur

**Keywords:** compiler optimizations, instruction packing, instruction regi

### 18 Block-aware instruction set architecture

 Ahmad Zrnily, Christos Kozyrakis

September 2006 **Transactions on Architecture and Code Optimization**

**Publisher:** ACM  [Request Permissions](#)


Full text available:  Pdf (539.64 KB) Additional Information: [full citation](#), [abstract](#), [ref](#)

**Bibliometrics:** Downloads (6 Weeks): 5, Downloads (12 Months): 91, Citation

Instruction delivery is a critical component for wide-issue, high-frequen  
bandwidth and accuracy place an upper limit on performance. The proce  
and bandwidth are limited by instruction-cache misses, multicycle ...

**Keywords:** Instruction set architecture, basic block, branch prediction,  
instruction fetch, software hints

### 19 Compiler techniques for code compaction

 Saumya K. Debray, William Evans, Robert Muth, Bjorn De Sutter

March 2000 **Transactions on Programming Languages and Systems (**

**Publisher:** ACM  [Request Permissions](#)


Full text available:  Pdf (409.20 KB) Additional Information: [full citation](#), [abstract](#), [ref](#)  
[review](#)

**Bibliometrics:** Downloads (6 Weeks): 15, Downloads (12 Months): 132, Citati

In recent years there has been an increasing trend toward the incorpor  
variety of devices where the amount of memory available is limited. Thi  
to reduce the size of applications where possible. This ...



**Keywords:** code compaction, code compression, code size reduction

### 20 Commit-reconcile & fences (CRF): a new memory model for architec

 Xiaowei Shen, Arvind, Larry Rudolph

May 1999 **ISCA '99: Proceedings of the 26th annual international sympos**  
architecture

**Publisher:** ACM

Full text available:  [Publisher Site](#),  Pdf (154.10 KB) Additional Information: [full citatio](#)  
[index terr](#)

**Bibliometrics:** Downloads (6 Weeks): 6, Downloads (12 Months): 30, Citation





We present a new mechanism-oriented memory model called Commit-R  
(CRF) and define it using algebraic rules. Many existing memory models  
restricted versions of CRF. The model has been designed so that it is ...

Also published in:

May 1999 **SIGARCH Computer Architecture News** Volume 27 Issue 2

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